Are International Capital Movement and International Labor Migration Substitutes under National Externality?

Abstract:
This paper examines the relationship between international capital movement (ICM) and international labor movement (ILM). Considering two economies that have identical technologies and factor endowment ratios but different sizes, this paper investigates whether ICM and ILM between the countries, when free trade in goods is allowed, are substitutes both in the price sense and in the quantity sense. Cases in which they are substitutes and those in which they are complements are described.

1 Introduction
With the growing importance of labor migration and foreign direct investment among countries, the theory of international trade has been putting more and more emphasis on international factor movements and their relations with trade in goods. Most of the analysis is given to the features of international factor movements and their relations with trade in goods.¹ There is, however, much less discussion about the relationship between different types of factor movements.

Nowadays, governments are facing many pressing issues related to factor movements and their relationship. For example, the United States has been receiving a substantial number of migrants from Mexico, some entering the United States legally but some making their ways into the country illegally. The United States has been spending resources on preventing the inflow of these undocumented immigrants and on deporting those who came illegally. Similar situations exist in Europe and Asia. Many Western European countries are receiving large numbers of legal and illegal immigrants from Eastern European countries. Japan, on the other hand, is a favorite destination for migrants from many other coun-

¹ See, for example, Mundell (1957), Markusen (1983), and Wong (1986).
tries in Asia. These poor migrants, who are seeking better economic lives, are making tremendous efforts to come to and stay in Japan, mostly illegally.

For the governments of these destination countries, getting the inflow of labor immigration, especially illegal immigration, under control is an important issue. On the destination side, these governments have spent a lot of resources on patrolling the border, catching illegal workers, prohibiting local employment of illegal workers, and deporting them. There has been limited success. Attention has been paid to the source side, and discussion has been made about how to discourage people there from trying to come to the destination countries. One suggestion made, which has been drawing a lot of attention, is to encourage more investment from the destination country to the source countries, especially in areas of the source countries close to the destination country. The reason behind this argument is that the investment will improve the income of workers in those areas, making the workers less interested in coming to the destination country. Implicit in this argument is that international capital movement can replace or diminish international labor movement.

The objective of this paper is to investigate the substitutability between international capital movement (ICM) and international labor movement (ILM). In particular, we want to find out whether more international capital movement could have the effect of discouraging international labor movement. For our analysis, we will use a model that is close to the neoclassical framework, except that one of the sectors is subject to external economies of scale. Such a model, which is common in the theory of international trade, has the advantage of examining the roles of increasing returns in determining trade in goods and factor movements.

In the literature, several different definitions of substitutability between trade in goods and factor movements have been suggested. Following Wong (1986, 1995), the relationship between ICM (international capital movement) and ILM (international labor movement) is defined in the present paper in two different ways:

1. Price Sense—ICM and ILM are said to be substitutes if each of them is sufficient to give efficient allocation of resources in the world. This means that either of them will lead to equalization of factor prices. Implicit in this statement is that goods are allowed to flow freely, and that the factor that is allowed to flow is not under any impediments, so that the final equilibrium is characterized by equalization of the prices of that factor in the countries. Thus, substitutability between ICM and ILM means that equalization of the prices of one of them in the countries will lead to equalization of the other prices, and vice versa. They are then said to be complements if both of them are needed to reach efficiency in the world, i.e., equalization of the prices of